REMARKS

Applicants have now had an opportunity to review the November 29, 2007, Final Office Action and request reconsideration of the application.

Claims 1-12 are currently pending.

Claim 1 is amended.

New claims 6-12 are added.

The Office Action

In the Advisory Action, the rejection of claims 1-5 under 35 U.S.C. §102(e) as being anticipated by U.S. Publication No. 2003/0077515 to Chen, et al., was maintained.

The non-statutory obviousness-type double patenting rejection of claim 1 over co-pending application U.S. Serial No. 10/567,740 in view of U.S. Publication No. 2003/0077515 to Chen, et al., was withdrawn.

For the reasons outlined below, it is submitted that the claims are in condition for allowance.

Claim 1 recites a gel comprising a carbon nanotube and an ionic liquid, wherein the ionic liquid is a salt which assumes a molten state at or very near room temperature. (Previously Presented) The gel is capable of assuming a fluid state when an external force is applied.

Support for the amendments to claim 1 are to be found in the specification at page 7, lines 6-9.

There is no suggestion of such a composition in Chen.

Chen discloses two methods for forming a composite material. Both methods start with a solution containing a polymerizable monomer, to which nanotubes are added. In both methods, the monomers are converted to a polymer. In the first method (electropolymerization), an ionic liquid can be used in the solution. This method results in the formation of a thin film on a solid substrate. In the second method (slow oxidation), the result is the formation of a gel. However, no ionic liquid is used in this method. Thus, the gel produced by the second method does not contain an ionic liquid.

There is no suggestion that Chen's polymer-containing film, produced by the first method, is a gel which is capable of assuming a fluid state when an external force is applied. The film formed in Chen's electropolymerization process is a polymer mass which would not be expected to be capable of assuming a fluid state. It is the polymer which gives Chen's film its structure, and which is not reversible by application of force.

In the present application, the combination of carbon nanotubes, an ionic liquid and a shearing force can be used to create the gel composition, without the need for a polymer. The unique structure of the gel composition thus formed allows it to assume a fluid state when an external force is applied.

Accordingly, it is submitted that claim 1, and claims 2-5 dependent therefrom, distinguish patentably over Chen.

Claim 5 recites a method for using the gel composition claimed in claim 1. In the method, a desired shape is formed from the gel composition by subjecting the composition in a fluidized state to application of an external force by a printing, coating, extrusion or injection operation, and then a step of removing the ionic liquid from said gel composition by bringing said shape in contact with a solvent capable of dissolving the ionic liquid or an absorbent capable of absorbing the ionic liquid.

The Examiner argues that Chen teaches the application of electromotive force in forming the film. Chen, however, makes no suggestion of applying force after the film has been formed. Nor does Chen suggest that the formed film can be subjected to an external force in a fluidized state. There is no suggestion that Chen's film is capable of being fluidized.

Accordingly, it is submitted that claim 5 further distinguishes over Chen.

New claim 6 recites a gel consisting of carbon nanotubes and an ionic liquid. The ionic liquid is a salt which assumes a molten state at or very near room temperature.

Support for claim 6 is to be found in original claim 1 and in the specification at page 4, line 26, page 5, line 1; and Example 1, at page 8, lines 6-12, and Examples 3-4 at page 11, lines 16-26).

Chen does not disclose a gel which consists of carbon nanotubes and an ionic liquid.

The Examiner points to paragraph [0049] of Chen as disclosing that after longer polymerization times, the electropolymerized film may be gelatinous. This film contains a polymer. It also includes a substantial volume of solvent (comprising monomer for forming the polymer), since it is the absorption of the solvent into the film which yields the gelatinous film. Thus, the gelatinous film disclosed in paragraph [0049] of Chen does not consist of carbon nanotubes and ionic liquid.

Accordingly, it is submitted that claim 6, and claims 7-11 dependent therefrom, distinguish over Chen.

Claim 12 recites gel composition formed by a method which comprises applying a shearing force to a mixture consisting of carbon nanotubes and an ionic liquid.

Support for new claim 12 is to be found in original claims 1 and 3 and in the specification at page 4, line 26, page 5, line 1; and Example 1, at page 8, lines 6-12, and Examples 3-4 at page 11, lines 16-26).

Chen does not disclose a gel composition formed by a method which includes applying a shearing force to a mixture consisting of carbon nanotubes and an ionic liquid. In Chen's method, the film is formed by a method which includes mixing or ultrasonication of nanotubes with an electrolyte which includes a solvent/solution and the monomer(s) to be polymerized (para. [0040]). The monomer present is neither an ionic liquid nor a nanotube. Thus, the mixture does not consist of carbon nanotubes and an ionic liquid.

The film formed by Chen's electropolymerization process is very different from the composition produced by the method claimed in claim 12. Its structure is generated by polymerization of monomers, rather than a shearing force acting on the nanotubes. As a result, it is not able to assume a fluid state when an external force is applied.

Accordingly, it is submitted that claim 12 distinguishes patentably over Chen.

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-12) are now in condition for allowance.

Respectfully submitted,

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